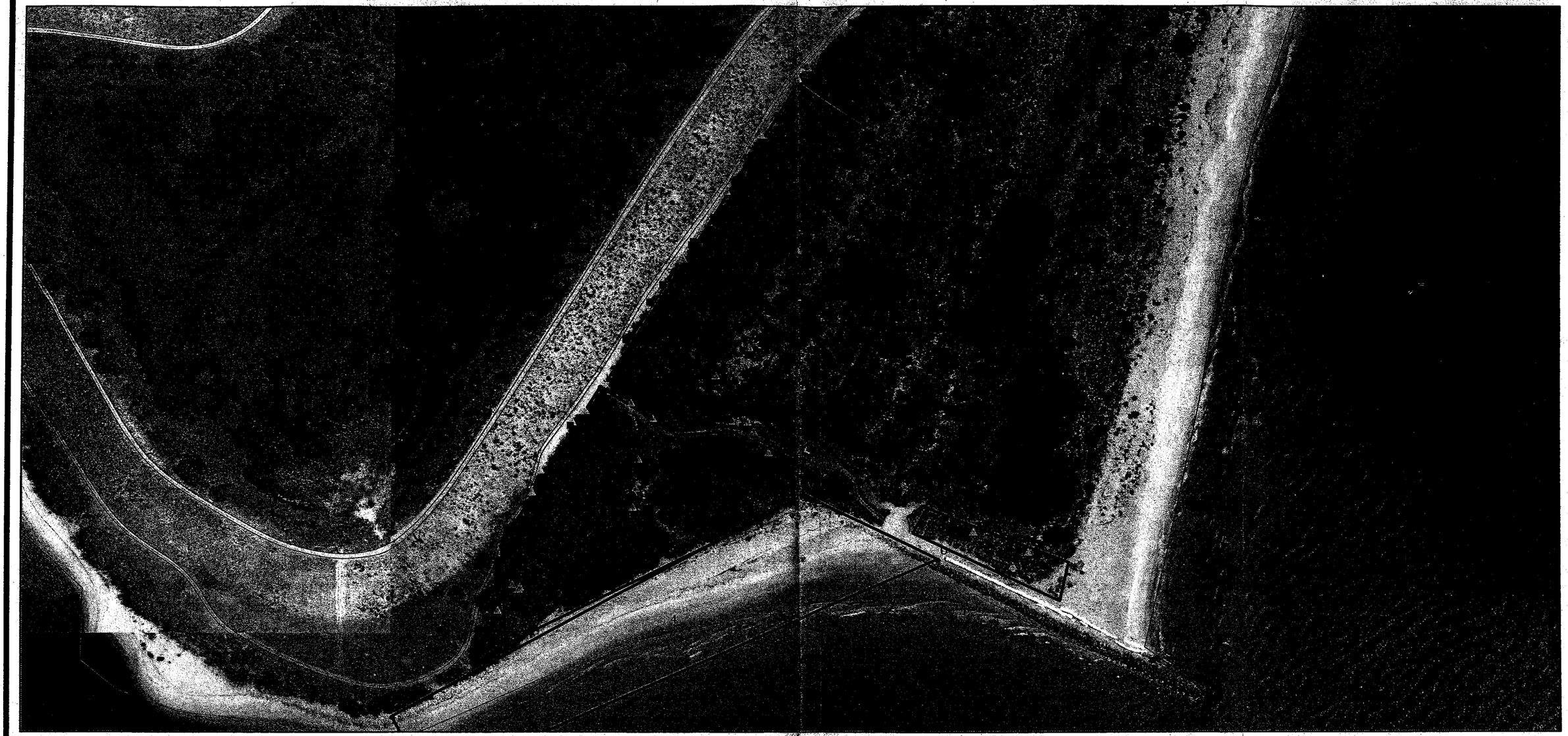

1 inch equals 63 meters

0 95 190 380 Meters

Environmental Site Survey in the Vicinity of the North Jetty at Canaveral Harbor

Location and Status of Gopher Tortoise Burrows
Areas 2, 3, 4 and 5

Brevard County, FL

Figure 4

N
W E
S

DYNAMAC CORPORATION

AC/YPG, May 2002

Legend

Burrow Status

- Active
- Inactive
- Abandoned
- Proposed Staging Areas

III. Wetland Surveys

The objective of the wetland survey was to identify and delineate any wetlands found within the study area.

Methods

The wetland surveys were conducted on 27 March and 1 April 2002. Surveys were performed in accordance with the *1987 Corps of Engineers Wetlands Delineation Manual* and in conjunction with this report's vegetative site survey. Field data sheets were prepared following the ACOE 1987 delineation manual for use if a wetland zone was observed.

Results

Soils

The surveyed areas belong to the Canaveral complex series, which is comprised of well-drained sandy soils with mixed shell fragments. Permeability is very rapid and the available water capacity is very low in all layers. Organic matter content and natural fertility is also very low (Huckle et al., 1974).

Vegetation

The vegetation at the proposed sites is associated with typical coastal dune/strand vegetation, i.e. saw palmetto (*Serona repens*), prickly pear (*Opuntia spp*), cord grass, dune sunflower (*Helianthus debilis*), sea grape, sea oats (*Uniola paniculata*), buckthorn and live oak (*Quercus germinata*). However, exotics such as Brazilian pepper were evident throughout.

Hydrology

All proposed areas except Area 1 and Area 2 are prone to short term inundation associated with tropical storms or hurricanes. No definite hydrological wetland indicators were found during our visit or during reviews of historical aerial photographs from 1941, 1943, 1951, 1958, 1969, 1979, 1985, 1989, 1996, and 2000.

None of the surveyed areas associated with the proposed project met the criteria for jurisdictional wetland classification; however, there was a wetland observed just outside Area 5 (Figure 6). This area is dominated by seashore dropseed grass (*Sporobolus virginicus*). This section has been staked out in order to keep construction and laydown activities away from it. If operations are planned near this area, erosion and sedimentation control measures should be employed to avoid impacts. If impacts to the wetland can not be avoided, a Dredge and Fill Permit from the U.S. Army Corps of Engineers and Florida Department of Environmental Protection (FDEP) might be required.

IV. Habitat/Vegetation Surveys and Map

The objectives established for the habitat/vegetation surveys were to identify and delineate groups of plant species present, as well as identify the location and densities of state listed species within the study area.

Methods

Areas 1, 1A, 2, 3, 4, and 5 were surveyed using transects. Each area was walked and the surveyor identified, recorded and mapped the plants in the field. When species identification was uncertain, specimens were collected for identification using additional plant keys and manuals. A Trimble GPS unit was used to specify locations of state listed species. Vegetation maps were created using ArcGIS software and geo-referenced aerial imagery from 2001. Dominant groups of species were identified and approximate arial coverages were mapped. Less dominant species were also listed, but not identified on the map. The state listed species', beach star and inkberry, found in the study area were identified as colonies and identified on the map. The state listed shell mound prickly pear cactus was identified on the map when it was found as a distinct colony.

Results

Habitat characterization: Classification was based on plant community composition and zonation. Coastal dune is distinguished by pioneering species continuously recolonizing the upper beach upon storm/high tide disturbance with a transition into the foredune. Coastal strand is typified by a shrub and pioneering species' mix within this transitional zone between the foredune and inland scrub and hammock communities.

Area 1

The southwest side of Area 1, was on a manmade berm with at least a 45 degree slope and was covered by the exotic Brazilian pepper, as well as the natives cabbage palm (*Sabal palmetto*), buckthorn, and saw palmetto. The north side of Area 1, west of the dirt road, was open, disturbed and dominated by carpet, finger, crab, panic and natal grasses (*Axonopus* sp., *Eustachys* spp., *Digitaria* spp., *Panicum* spp., and exotic, natal *Rhynchelytrum repens.* Low-lying prickly pear cacti, sapling varnish leaf, sea grape, beach sunflower and the sedge, *Fimbristylis spadicea,* were interspersed among the grasses and sandy openings. The eastern most edge of Area 1, representing the final 25 percent of area, was dominated by similar grassy groundcover with some sandy openings dotted with colonies of the sedge *Fimbristylis spadicea.* Clumps of cordgrass were observed within the eastern most section of Area 1. Short-stature sea grape, saw palmetto, beach sunflower, beach croton (*Croton punctatus*), sweetclover (*Melilotus albus*), varnish leaf, and a mix of the common and state threatened prickly pear cacti were interspersed throughout with occasional

clumps of groundsel and dog fennel (*Eupatorium capillifolium).* Area 1 appears to have been previously cleared or succumbed to storm-related overwashes that salt-killed less resistant vegetation as it had a very disturbed, open appearance. If the option to move Area 1 north to account for the berm is seriously considered, then clearing of taller, dense vegetation (approximately 6-20 feet height) will be necessary. The composition was a mix of buckthorn, Brazilian pepper, varnish leaf, saw palmetto, wax myrtle (*Myrica cerifera*), red cedar (*Juniperus lucayana*), coral bean (*Erythrina herbacea*), live oak and sea grape. Area 1 (Figure 5) was classified as disturbed coastal dune/strand habitat. The red vegetative code in Figure 5 indicates identification of a state-listed species in that area.

Area 1A

Area 1 transitioned into Area 1A following the same pattern of dominant grasses but did differ with denser patches of Brazilian pepper, saw palmetto and buckthorn near the center. A couple cabbage palms were also interspersed within the Brazilian pepper.

The southwestern side of Area 1A, adjacent to the central stand of Brazilian pepper, was interspersed with dog fennel, buckthorn, and broomgrass (*Andropogon* sp.). The northwestern section of Area 1A, past the tall stand, opened back up to dominant grasses interspersed with sapling varnish leaf and prickly pear cacti. The western most edge of Area 1A, bordering the paved road, possessed a fire hydrant, a ditch approximately four feet deep, and a portion of a 10 foot tall live oak tree. Area 1A was classified as disturbed coastal dune/strand habitat. Figure 5 shows the generalized map of the vegetative composition of Areas 1 and 1A.

Area 2

Approximately three-quarters of Area 2 was comprised of relatively dense vegetation dominated by Brazilian pepper. The west side of Area 2 encompassed the Brazilian pepper that was interspersed with moderate densities of native sea grape and coin vine. The eastern side had some larger open areas dominated by patches of dune/marsh grasses (*Muhlenbergia calicarpa* and *Panicum* spp.), saw palmetto, sea grape, and buckthorn. Rapanea (*Rapanea punctata*), Florida privet (*Forestiera segregata*) and wax myrtle were interspersed throughout although in fewer numbers. Some sandy areas within this open, eastern edge of Area 2 were dotted with varnish leaf, prickly pear cacti (*O. stricta* and *O. humifusa*), partridge-pea (*Cassia fasciculata*), gopher apple (*Licania michauxii*), and the sedge *Fimbristylis spadicea.* The species identified within the eastern side indicated classification of this area as a Muhlenbergia grassland (Myers and Ewel, 1990). The southern edge, bordering the grass road to the north jetty, was generally covered with stands of the exotic mimosa, grasses (*Rhynchelytrum repens, Andropogon* sp.), patches of frostweed (*Verbesina*